Room at the Top: The Failures of the Mathematics Pipeline for Minorities

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April 10, 2019

For good reason the nation uses representation in the areas of:

Mathematics, Computer Science, and Electrical Engineering

as indicators of health of STEM representation.

Blacks and Hispanics as Faculty in Academia

Discipline	Top 100 Departments		
	Blacks	Hispanics	Asians
Math	1.5%	1.7%	16.6%
Computer Science	0.9%	1.8%	27.1%
Electrical Engr	1.7%	1.7%	28.4%

Most Problematic Transition Point for URM at Research Universities is Faculty Hiring

Research university's math hiring criteria:

- Pedigree of school attended is a huge factor.
- Number of papers in respected journals is a huge factor.
- All other attributes just need to be satisfied at a low threshold level.

Faculty representation will not improve under the present model for hiring.

Why Worry About Underrepresentation?

- Our representation in the population is exploding.
- Our representation in STEM discipline is not improving.

“AN UNHEALTHY NATIONAL SITUATION”

Yes We Are Here,
But We Are Not There!

Minorities are Absent in STEM Graduate Programs in Schools of High Pedigree

Examples: UCLA, Stanford

Why?

Acceptance today is extremely competitive

Undergraduate Minority Concerns

- Jobs not graduate school for many of our best students.
- Migration away from STEM due to loss of confidence and self esteem due to poor K-12 preparation.
- We URM have poorer preparation in K-12.
- Mathematics faculty do not differentiate between poor preparation and poor talent.

  Hence in entry level courses they interpret poor performance as poor talent and discourage the URM from continuing in STEM disciplines.

US Public Urban K-12 Schools are Problematic and That is Where Our Minorities Go To School

For example

HISD	8% White
City of Houston	25% White

Similar situation for other big cities.

Imperative for Health of the Nation

Improve Math and Communication Skills in Urban K-12 Public Schools.

Improvements Issues

- Identify math talent early and nurture it like we do athletic talent.
- Promote confidence in math by leading the students to some math successes.
- Stress the importance that math is the foundation of almost all science and engineering areas.
- Break belief that there are “math people” and “non-math people”.
- Ensure teacher competence and math content knowledge (some are very good).

THANK YOU

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